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MARSHALL STAR

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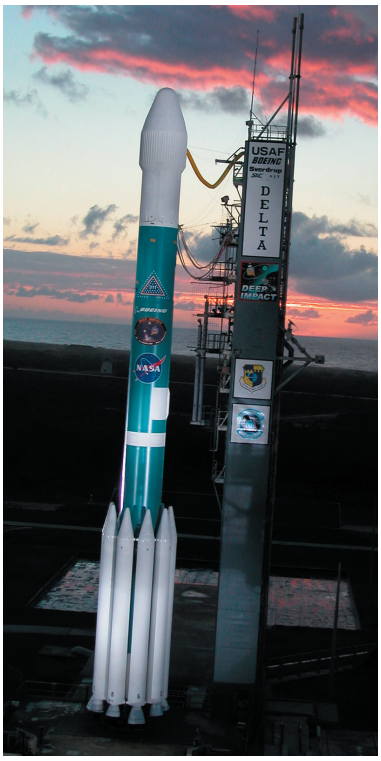

The Deep Impact spacecraft, launched on Jan. 12, will send a projectile that will bore into a comet and gather clues to its structure.

Discovery and New Frontiers programs aim to explore the Solar System

By Lori Johnston

What other Earth-like planets exist outside our Solar System? What was our own Solar System like 10 million years ago? What's the makeup of the planet Pluto? Those are just some of the questions NASA's Discovery and New Frontiers Programs are venturing to answer.

Marshall Center's new Discovery and New Frontiers Program Office has been tasked to manage these two exciting programs for NASA Headquarters Science Mission Directorate. In addition, the program office assists HQ in the technology planning, systems assessment, flight assurance and education and public outreach for each mission.

The Discovery Program includes focused, scientific investigations that complement NASA's larger planetary exploration. Its goal is to launch numerous small missions with a faster development phase – each for considerably less than the cost of larger missions.

Of the Discovery Program's 11 missions, four are operational, two are under development for flight and five have been completed.

Among the active missions is the Mercury Surface Space Environment Geochemistry and Ranging mission, or MESSENGER, launched in August 2004 to study the planet Mercury. The spacecraft will orbit the planet Venus twice, and then fly by Mercury three times before starting a yearlong orbit of the planet in 2011. MESSENGER will provide the first images of the entire planet and collect detailed information on Mercury's makeup.

The second active mission is Stardust – the first space mission dedicated solely to studying a comet. Launched in February 1999, the objective is for the spacecraft to experience a close encounter with

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Giacconi to receive top science medal

By Ron Koczor

Nobel Prize winner professor Riccardo Giacconi -- a key developer of the Chandra X-ray Observatory -- has been awarded the 2004 National Medal of Science by President George W. Bush.

Giacconi, a research professor at Johns Hopkins University in Baltimore, will receive the award -- the nation's highest honor for achievement in science and technology -- during a ceremony March 14 at the White House.

A 2002 winner of the Nobel Prize in Physics for his pioneering contributions to astrophysics, Giacconi led development in 1976 of a space telescope concept that eventually resulted in the Marshall Center's Advanced X-ray Astrophysics Facility project -- the original name of the Chandra telescope, launched to orbit by NASA in 1999. Chandra has spent nearly six years uncovering the

Giacconi

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King: The feeling of flight is back

Director's Corner

Marshall Center Director David King

I want to thank everyone who came to Morris auditorium or watched from the conference rooms Feb. 7 as NASA Administrator Sean O'Keefe gave the budget roll-out briefing. Those who watched my briefing that followed will recall a statement I made regarding my recent visit to Kennedy Space Center: "The feeling is back!"

It's been many months since the feeling of flight has been in the air. We've talked about it and many have dreamed about it. But we knew we had much work to do to ensure safe flight; appropriately, we all had to put our feelings on hold. The entire Agency and its contractor partners have been working tirelessly to prepare the Space Shuttle and all of its components for Return to Flight. Many long hours have gone into this goal. Many have given up personal time and have made other sacrifices along the way. Many thanks are owed to this outstanding team.

The "feeling" that I mentioned during the Feb. 7 Marshall Update is that of excitement. When I saw the Shuttle hardware in the Vehicle Assembly Building at Kennedy and the Station hardware in the Station Processing Facility – hardware awaiting its Shuttle ride – the feeling of flying came back. What NASA does is fascinating and flying the missions is evidence we are moving forward. Ordinary people doing extraordinary tasks – designing, building, launching and benefiting life on Earth – that's NASA.

I've said it before, and I'll say it again: I know that when STS-114 launches we'll all feel an overwhelming sense of pride. I suspect many – including me – will feel a few tears well up. We're in an amazing business – space flight. The benefits of the work we do are innumerable. The technological advances of what we do are awe-inspiring. The benefits of discovery and exploration have literally re-written textbooks. Yet, with all we have accomplished, we are just now beginning to unravel the mysteries of the universe. That, in itself, is remarkable.

There is still much work ahead of us. Returning the Shuttle to safe flight is the first *real* step of the Vision for Space Exploration. The Vision has been described as the New Age of Exploration. The marvels, contributions and advancements are yet to be revealed.

Return to Flight is only months away and our new journey into the cosmos is just beginning.

It's all very exciting and the feeling is definitely back!

Discovery

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Comet Wild 2, collect more than a thousand particles of comet dust and snap detailed pictures of the comet's surface. Stardust passed within 149 miles of the center of Comet Wild 2 last January. The samples and photographs collected will be returned to Earth in January 2006.

The Deep Impact mission, launched in January 2005, will send a large copper projectile into the path of a comet. The resulting intercept will bore into the comet, and scientific instruments will reveal never before seen materials that hold clues to the structure of a comet.

ASPERA-3 is another active mission, called a Discovery Mission of Opportunity. A Discovery Mission of Opportunity is not a complete Discovery Mission, but rather is just one piece of a larger mission. It gives the U.S. scientific community the chance to participate in non-NASA missions by providing funding for a science instrument, hardware components of a science instrument, or expertise in critical areas of a mission.

Planned missions include the Dawn mission, which will visit the two oldest asteroids in our Solar System. Set for launch in June 2006, the Dawn spacecraft will reach the asteroid Vesta in 2010 and the asteroid Ceres in 2014. The surfaces of the two asteroids are believed to contain a snapshot of conditions present in the Solar System's first 10 million years.

Another future mission – the Kepler mission – is designed to find Earth-sized planets in orbit around other stars outside of our own Solar System. Planned for launch in the fall of 2007, Kepler will monitor 100,000 stars similar to our Sun for four years.

In addition, five Discovery missions have been completed, including the Mars Pathfinder, Near Earth Asteroid Rendezvous or NEAR, Prospector, Genesis and the Comet Nucleus Tour, or CONTOUR.

The first New Frontiers mission, called New Horizons, is scheduled for launch in 2006. It will explore Pluto, its moon Charon and the area just beyond it known as the Kuiper Belt. In a trip that will take almost 10 years, the spacecraft will study the small, icy worlds drifting around the Sun, a billion miles past Neptune, in an effort to better understand the distant reaches of our Solar System.

NASA has also selected two mission proposals under the New Frontiers Program for pre-formulation study, leading to the selection of a second New Frontiers mission in May 2005.

The Discovery and New Frontiers Program Office is managed by Todd May and is part of the Space Systems Programs/Projects Office managed by Tony Lavoie.

The writer, an ASRI employee, supports the Public Affairs Office.

Photo by David Higginbotham/ Marshall Center

Maker of External Tank attach ring recognized

Standing in front of the Space Shuttle's newest External Tank attach ring, Jeff Hunter, center, vice president of Huntsville's General Products, shows off the certificate he recently accepted on behalf of employees at the plant from NASA and United Space Alliance representatives. General Products produced its first flight set of two rings in less than a year. The rings -- now made with a stronger steel and improved manufacturing processes -- are mounted on the Shuttle's Solid Rocket Booster and attach the boosters to the tank. With Hunter are, from left, Jim Carleton, director of Solid Rocket Booster Program Management; and Paul Gutierrez, associate program manager for the Solid Rocket Booster, both with United Space Alliance (USA); and David Martin, manager of Solid Rocket Booster Project and Jim Reuter, deputy manager of the Space Shuttle Propulsion Office, both with the Marshall Center.

Access to employment and income verification available

An automated system for verifying employment and income was implemented last year at the Marshall Center. This secure, Web-based system provides up-to-date employee data to entities that require employment and income verification. The service is available to all NASA civil servants.

Previously employees who needed employment or income verification were required to participate in a lengthy process. Now, by calling 1-800-367-2884 or accessing the Web site at www.theworknumber.com employees can make this information available to a third party. Employees simply log onto the Web site and follow the instructions.

Marshall employees will benefit by having control of the process and by immediately providing employment and income verification to loan, mortgage, or residential rental offices.

For more information, call 544-2438.

Return to Flight update

NASA is marking a major step in assembling the Space Shuttle for its Return to Flight mission. Monday, workers successfully "mated," or attached, the redesigned External Tank and twin Solid Rocket Boosters. The fuel tank and booster rockets will help launch Space Shuttle Discovery on its mission to the International Space Station, currently targeted for May 15-June 3.

The Space Shuttle's External Tank was lifted by a giant crane and joined to the already assembled, or "stacked," boosters in the 52-story Vehicle Assembly Building at NASA's Kennedy Space Center, Fla. Mating the tank with the boosters is another major step in readying the Space Shuttle system for flight.

Giacconi

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mysteries of the universe, revealing how galaxies are formed, illustrating the catastrophic power of black holes that engulf whole star systems, and piquing the interest of scientists and stargazers the world over.

"Riccardo is the most forward-thinking and insightful scientist I have ever known," said Dr. Martin Weisskopf, Chandra project scientist at Marshall, who worked with Giacconi throughout development of the space observatory. "He truly deserves this honor," Weisskopf added.

Giacconi will be in Huntsville April 5-7, attending the World Year of Physics Conference at the Von Braun Center. He will speak to attendees April 6 at 9 a.m., delivering an address on the development and continuing refinement of X-ray astronomy.

Giacconi led the science team at the Smithsonian Astrophysical Observatory in Cambridge, Mass., that teamed with Marshall to manage the Chandra mission. He remains a member of the Chandra Science Working Group, and is principal investigator for the Ultra-Deep Sky Survey, which combs the farthest -- and thus oldest -- sections of the universe for new scientific discoveries. Chandra's "Deep Field South" survey has delivered one of the deepest cosmic X-ray images ever obtained, revealing highly energetic sources of solar and planetary development and other evolutionary processes that have been at work since the dawn of the Universe.

Giacconi was among the eight National Medal of Science recipients announced in February. The award honors individuals in a variety of fields for pioneering scientific research that has led to a better understanding of the world around us, as well as to innovations and technologies that give the United States its global economic edge. The National Science Foundation administers the award, established by Congress in 1959.

For more information about the National Medal of Science, visit:
www.nsf.gov/nsb/awards/nms/medal.htm

For more information about the World Year of Physics Conference, visit:
http://www.wyp-ptm.org/

The writer is associate director, Science and Technology Directorate at Marshall.

Obituaries

Byron M. Brumback, 88, of Huntsville, died Dec. 4. Mr. Brumback retired from the Marshall Center in 1973 after working as a flight systems test engineer.

Survivors include two sisters, Willie May Brumback Lent of Boonsboro, Md., and Alyce Brumback Boyd of Santa Barbara, Calif.

Garland G. Buckner, 81, of Huntsville, died Jan. 24. Mr. Buckner retired from the Marshall Center in 1977 after working as a procurement officer. He was also a World War II veteran.

Survivors include his son, Jim Buckner of Chattanooga; and a sister, Mila Hunter of Tulsa, Okla.

Gerald J. Curet, 71, of Huntsville, died Jan. 27. Mr. Curet retired from the Marshall Center in 1991 after working as a computer engineer. He also served in the U.S. Army.

Survivors include a son, Dr. Steven Curet of Huntsville; and a daughter, Susan Stripling of Huntsville.

Glen A. Deuel, 82, of Huntsville, died Dec. 12. Mr. Deuel retired from the Marshall Center in 1979 after working as an aerospace engineer. He was a World War II veteran. He was also a charter member of Trinity United Methodist Church and a founding member of the North Alabama Shell Club.

Survivors include his wife, Marion C. Deuel; his daughter, Diane Hansen of Scottsdale, Ariz.; a son, Allen Deuel of Scottsdale, Ariz.; two sisters, Della Matthews of Opelika, Ala., and Carolyn Jones of Merritt Island, Fla.; and a brother, Calvin Deuel of Huntsville.

Burl R. Fleming, 83, of Arab, died Dec. 26. Mr. Fleming retired from the Marshall Center in 1976 after working as an aerospace engineering technician. He was a World War II veteran who served as an Army Air Corps aerial engineer.

Survivors include his wife, Ruth Fleming; four sons, Russ Fleming of Arab; Joe Fleming of Leeds; Keith Poole of Arab; and Van Fleming of Sevierville, Tenn.; three daughters, Anne Thompson of Athens; Susan Prill of Huntsville; and Kim King of Killen; and a sister, Bessie Mae Brannon of Snead.

James W. Fletcher, 83, of Huntsville, died Jan. 11. Mr. Fletcher retired from the Marshall Center in 1976 after working as a supervising contract specialist. He was a World War II veteran who served as a combat engineer unit commander. He was also a charter member of the Cahaba Shriners of Huntsville.

Survivors include his wife, Signa R. Fletcher; a daughter, Suzanne Morrison of McLean, Va.; two sons, John L. Fletcher of Huntsville and James Fletcher Jr. of Collierville, Tenn.; and two sisters, Winnie Gray of Clarksville, Tenn., and Mary Helen Nall of Clay, Ky.

Bobby C. Hodges, 71, of Huntsville, died Dec. 9. Mr. Hodges retired from the Marshall Center in 1988 after working as a computer scientist. He taught computer science courses at the University of Alabama in Huntsville and Calhoun Community College.

Conducting ISS payload experiments

NASA astronaut James F. Reilly II tests two experiments at the Marshall Center that will be used in future International Space Station crew training. Reilly, who flew on Space Shuttle mission STS-89 in 1998, the STS-104 mission in 2001, and is assigned to the future STS-117 mission, is the first astronaut to conduct usability tests – evaluating the effectiveness, efficiency and acceptability of payload crew displays and procedures – in the new Space Station Laboratory Training Complex in Bldg. 4663 at Marshall. The experiments are part of the Capillary Flow Experiment series addressing fluids in space to be conducted on Expedition 12, set for launch in October 2005. Primarily designed to be a "virtual" training facility, the Marshall complex offers another location for crews to train for conducting Space Station payload experiments.

Survivors include his wife, Sue Hodges; a son, Tim Hodges of St. Joseph, Mo.; and a brother, Paul Hodges of Knoxville, Tenn.

Billy B. Keller, 70, of Hebron, died Dec. 18. Mr. Keller retired from the Marshall Center in 1989 after working as an electrical engineer.

Survivors include his wife, Nancy Grant Keller; two daughters, Kimberly Taylor of Grant and Lisa Rhodes of Huntsville; two sons, Gregory Keller of Grant and Michael Keller of Guntersville; and a sister, Doris Keller of Hebron.

Fred T. Manning Jr., 74, of Huntsville, died Jan. 13. Mr. Manning retired from the Marshall Center in 1987 after working as an aerospace engineering technician. He was a charter member of the Marshall Center.

Survivors include his wife, Martha K. Manning; a son, Fred T. Manning III; and a sister, Wilodene Edwards.

Announcements

U.S. Sen. Richard Shelby to speak to Chamber group March 14

U.S. Sen. Richard Shelby will hold a Washington Update at 7:30 a.m. March 14 in the Von Braun Center, North Hall. The event is sponsored by the Huntsville-Madison County Chamber of Commerce. Tickets are $25 and may be purchased from the Government and Community Relations Office by March 9. Call Rosa Kilpatrick at 544-0042 for more information.

Entries being accepted for 2005 Software of the Year Award

Entries are being accepted for the 12th Annual NASA Software of the Year Award. This award recognizes NASA team members who develop exceptional software for use by NASA. The award includes the NASA Software Medal certificate and up to $100,000. NASA centers, facilities, major contractors, supporting universities and small businesses may participate. Entry deadline is April 15. For contest rules and submission guidelines, go to http://icb.nasa.gov/

SE Software Engineering Conference is March 28-31

The fourth annual Southeastern Software Engineering Conference will be March 28-31 at the Von Braun Center. The event is an opportunity to learn how advancing software technologies are impacting commercial, space and military applications. For more information, go to http://www.se2conference.com

Women's History Month Educational Fair is Thursday

Team Redstone will host a Women's History Month Educational Fair from 11 a.m. to 1 p.m. Thursday in the lobby of the Sparkman Center's Bob Jones Auditorium. Various topics will be presented during the event by federal agencies housed at Redstone Arsenal, including the Marshall Center. Call Billie Swinford at 544-0087 for more information.

Earth Day class offers continuing education credit

A free continuing education class on environmental sustainability will be held from noon to 2 p.m. April 19 in Bldg. 4316, following the Earth Day ceremony. The class will be taught by Dr. Brian and Mary Nattrass, experts in the field of sustainability. Each participant will earn two continuing education credit hours.

World Year of Physics Conference is set for April 5-7 in Huntsville

The World Year of Physics Conference will be held April 5-7 at the Von Braun Center in Huntsville. The event will include two days of invited paper presentations and a day of education outreach activities. Thirteen speakers have been invited, including two Nobel Laureates. For more information, go to http://www.wyp-ptm.org. The Marshall Center is a co-sponsor of the conference.

Chamber president to speak at Marshall Association Luncheon

Brian Hilson, president of the Huntsville-Madison County Chamber of Commerce, is speaker for the Marshall Association Luncheon on Tuesday at 11:15 a.m. in Bldg. 4316. The luncheon cost is $9. Call Tom Fleming at 544-3962 by Friday for reservations.

Advanced Space Propulsion Workshop set for April 7-8

The 16th Annual NASA Advanced Space Propulsion Workshop is set for April 7-8 at the University of Alabama in Huntsville Bevill Center. This year's workshop will focus on technology readiness levels, relatively far-term space propulsion and power concepts and technologies that hold the promise of enabling ambitious robotic and human exploration missions for the 21st century. Register for the workshop at http://www.uah.edu/research/PRC/ASPW

AIAA March meeting is March 15 at Holiday Inn

Richard E. Reeves, president and chief executive officer of Biztech, Inc., will speak March 15 at the monthly meeting of the American Institute of Aeronautics and Astronautics. The meeting will be held at the Holiday Inn Research Park. Dinner begins at 7 p.m. and the cost is $15 for students and $20 for all others. For reservations, call Kevin Higdon at 256-679-3143.

Classified Ads

Miscellaneous

Computer desk, drawers/shelves, $150. 776-9165

Kenmore refrigerator w/ice maker, $150. 585-0473

Bedliner for Nissan Frontier extended cab or similar, $100. 256-881-0755

Oak table, claw foot, 4' diameter, w/four chairs, glass table top, $275. 345-4255

Pfatt 806 sewing machine w/instructions and accessories, $150. 656-2951

Complete aquarium, 20 gallon, wooden stand, light, heater, filter, air pump, gravel, $85. 256-420-8812

Magellan GPS companion for Palm M500 series with software, $50. 256-850-4185

Queen size sleeper sofa, wood accents, pastel colors, will deliver. $115. 683-5380.

Pennsylvania House video cabinet, Cherry, holds up to 30" tv, vcr/dvd, $750. 931-427-2059

Dining room suite, $700; sofa table, $50; large desk, $20, sofa bed, $100. 534-0939

John Deere Model 70 loader, fits 750, 755 and 855 tractors, $1,000. 256-772-9768

Sewing machine w/electric lift cabinet, $320. 464-9408

New Epson-C84 printer, $47; LCD monitor, 17", $229; CRT, 19", $80; Belkin 500VA-UPS, $49. 489-0136

La-Z-Boy recliner, white leather, $295. 851-0893

2001 Mazda Protégé OEM steel wheels, $50 pair. 508-4379 evenings

2001 Jayco travel trailer 314BHS, one-owner, loaded, slide, bunks, fiberglass, $16,950. 461-7238

1999 Whirlpool free-standing electric stove, white, $125; formal white sofa, $100; formal chairs, $25; exercise bike, $20. 430-6842

GE Profile Spacemaker XL 1800 above stove microwave, dead magnetron, for parts, $100. 882-0133

Desk, 24x54, walnut laminated top, chrome legs, almond colored steel frame, $49. 971-0571

Camper shell for short S-10, $125; Sunn Model-T guitar amp, $500; Bach Stradivarius trumpet, $1,200. 851-8085

Lowe boat, 12', w/trolling motor and marine battery, $350. 214-0110

Set of car axle stands, $7; set of heavy duty fireplace irons, $10. 881-5642

BOSS RC20 Loop Station guitar pedal, stack multiple loops, change tempo w/out pitch, $150. 303-3702

Vehicles

HD 2002 Sportster 883R w/extras, 7.5k miles, $5,800. 509-9550

1996 850 GLT Volvo, 80k, all-power, multi-compact disc, black w/gray leather, $7,900. 256-536-8480

2004 Ford Expedition XLT, red, 4.6L/v8, 25k miles, dvd, 8-passenger, $23,500. 508-6863

2001 Ford Expedition, 76k miles, rear air, 6-disc changer, back-up sensors, towing, $11,900. 895-0577

2003 GMC Sonoma truck, under warranty, 5-speed, 23k miles, $9,000. 679-4198

2000 F250 Super-Duty Lariat, 4x4, crewcab step bars, v10, tow package, 91k miles, $19,000. 725-3798

1994 Lincoln Mark VIII, leather, 220k miles, new air ride suspension compressor, $2,100. 256-520-3874

1999 Honda CR-V, EX, 4wd, sunroof, cd, auto, 98k miles, $8,200. 256-520-8088

2001 Ford Taurus SE, approx. 69k miles. 205-243-1403

1967 Ford Galaxy 500, 4 dents, complete, running when parked, $750. 882-0461

1985 Honda XR250, 4-stroke, new seals and gaskets, $1,000. 931-937-1144 after 5 p.m.

1981 J10 Jeep pickup truck, 4-speed, 6-cyl., 4x4, $1,750. 931-433-9641

2001 Toyota 4Runner Limited, silver, leather, heated seats, $17,900. 851-8738 after 5 p.m.

1993 Nissan Quest, 201k miles, leather, automatic, v6, loaded, transmission problems, $2,000 negotiable. 851-8447

2000 Toyota Camry LE, 4-cyl., 4-door, auto, white, all-power, 64k miles, $9,500. 256-247-1122

2000 Ford Explorer Sport, v6, 5-speed, 2wd, am/fm cassette/cd, 68k miles, one-owner, $6,500 251-828-9798

2001 F150, extended cab, v8, Lariat, loaded, 61k miles, cd, leather, running boards, $14,995. 534-6155

1998 BMW 740IL, hunter green, tan leather interior, 101k miles, new tires, $16,000. 682-0888

2003 Honda Odyssey EX, leather, redrock pearl exterior, 53k miles, $21,500. 256-508-6989

2000 Acura, 3.2TL, 74k miles, 4-door sedan, moonroof, automatic, new tires, leather, loaded, $12,900. 881-8674

2000 Jeep Wrangler, SE/TJ, 24k miles, original owner, hard doors, silver, extras, $9,500. 337-4321

1978 Ford F100, 351/v8, 109k miles, ac/ps/pb, liner, tow package, $4,000. 256-694-5743

1998 Toyota Sienna XLE van, 5-door, 111k miles, towing package, $7,200. 256-534-3777 after 6 p.m.

2003 Neon SE, 4-door, cobalt blue, automatic, new tires, $8,600. 256-431-7509

Wanted

Ethan Allen or Tell City maple coffee table & two end tables. 533-0166

Pottery wheel, for a beginner, to purchase or rent, can pick-up. 256-890-0401

Lost

Cordless screw driver somewhere at Marshall. Call Mark at 544-3587 if found

Found

Very small Subaru key, Curtis DA27 style, Bldg. 4201 parking lot. Call 544-6456 to claim

MARSHALL STAR

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